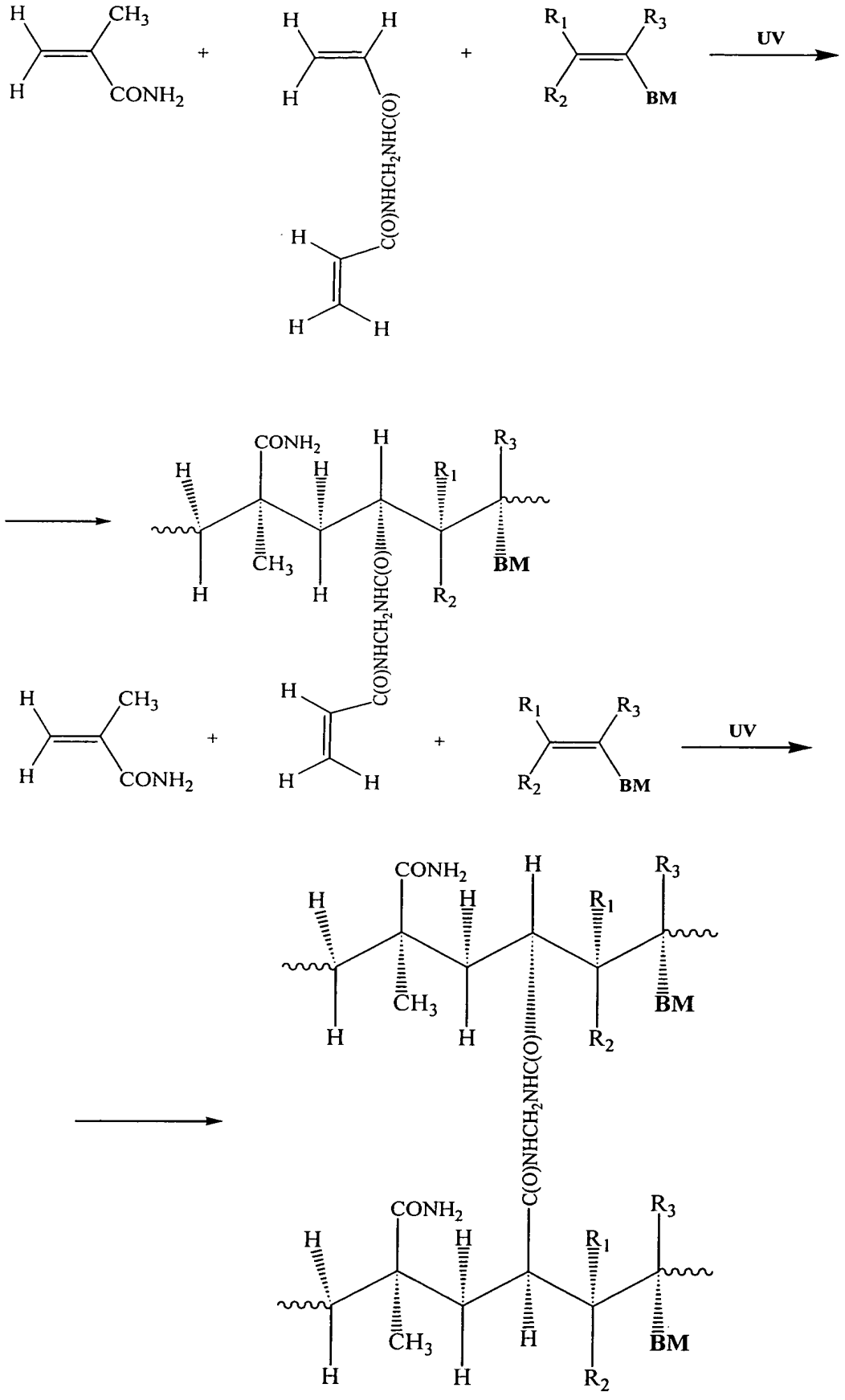
REMARKS

Claims 18-51 are in this application. Claims 1-17 have been cancelled. Claims 35-51 correspond substantially to claims 1-17 previously on file except that claims 35-50 claim a method for immobilization of biological macromolecules in hydrogels by using a composition (K) prepared by copolymerization.

The Examiner has issued an Official Action requiring restriction between twenty-one groups of inventions.

It is respectfully requested that all of these claims be examined in this application. If the examiner does not agree that all of the claims are to be examined in this application, it is respectfully requested that Claims 24-51 be examined. These claims claim a method for immobilization of biological macromolecules in hydrogels by using a composition (K) prepared by copolymerization, a biochip prepared on the basis of any of the method claims 18-49 (claims 24-32) and claims 33-34, which claim a method for performing the PCR over a biochip according to the method claims 24-32.

An example of a copolymerization reaction according to this invention is :


UV
UV
BM
C(O)NHCH2NHC(O)

The invention relates to improving the method of immobilization of biologically active compounds on the surface of solid phase and to developing biochips having said immobilized biologically active compounds in the cells of hydrogels using the improved method.

The biochips are a result of further improvement of the method of heterogeneous solid phase bioanalysis, such as dot-analysis and immunoanalysis in a microplate. Biochips differ from said methods in that biologically active compounds are immobilized not on the surface of solid phase but in the volume of a polymer gel. Such approach, first, leads to substantive increase in signal, second, allows minimizing the device for the analysis thereby simplifying the analysis procedure and decrease the amounts of reagents required for analysis, both the binding biologically active compounds and the tested sample itself and detecting agents.

It is well known to a specialist in the art that the heterogeneous solid-phase analysis is based on the following concept:

1. Binding biologically active compounds are immobilized on the surface of solid phase.
2. A tested sample is incubated with the solid phase on the surface of which the binding biologically active compounds are immobilized.
3. The amount of the bound tested compounds is determined with the help of detecting compounds conjugated with some mark (isotope, enzymatic, chromogenic, luminescent, colloidal).

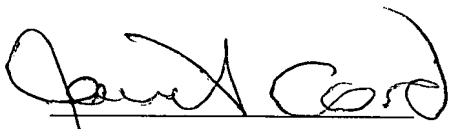
As it follows from the general idea of the heterophase method, said method does not depend either on the nature of the immobilized compounds that can be nucleic acids (independent whether they (oligonucleotides) are short or long) as well as proteins or carbohydrates or on the nature of tested compounds or on the nature of detecting compounds.

The method also does not depend on the mechanism of interaction between binding and tested compounds and between tested and detecting compounds, it can be any stereospecific interaction: complementary, antigen-antibody, ligand-receptor, enzyme-substrate or biotin-(strept)avidin interaction.

All rights to file one or more divisional applications directed to the subject matter of the nonelected claims and/or any other subject matter disclosed in the specification are preserved.

Applicants submit that the present application is in condition for allowance and favorable consideration is respectfully requested.

Respectfully submitted,



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